



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,243	01/26/2001	Satoshi Imasu		5012

7590

10/02/2002

MATTINGLY, STANGER & MALUR, P.C.  
104 East Hume Avenue  
Alexandria, VA 22301

EXAMINER

VIGUSHIN, JOHN B

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/769,243

Applicant(s)

IMASU ET AL.

Examiner

John B. Vigushin

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-31 is/are allowed.
- 6) ☒ Claim(s) 14-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 26 January 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/048,054.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continuing Application***

1. The present Office Action is responsive the instant Continuing Application. The Examiner acknowledges the Preliminary Amendments filed as Paper Nos. 2 and 3, respectively, wherein Claims 1-13 have been cancelled and new Claims 14-31 have been added, and the Specification has been amended. Claims 14-31 are now pending in the instant Application.
2. The Examiner has reviewed all the prior art cited or relied upon for the rejections in the parent Application No. 09/048,054, filed March 26, 1998, now US Patent No. 6,208,525 B1, as required by the MPEP § 2001.06(b).

### ***Specification***

3. The Specification is objected to because of the following informalities:  
On p.21, line 7: "electrode pads" should be changed to --bump electrodes--.  
On p.23, line 5: "19" should be changed to --19A--.  
Appropriate correction is required.

### ***Claim Objections***

4. Claims 14-19 are objected to because of the following informalities:  
In Claim 14, line 20: before "conductive" insert --said plurality of--.  
Claims 15-19 depend from Claim 14 and therefore inherit the defect of the claim.  
Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 14-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 14, lines 19-21 recite "wherein a distance between said second portions of [said plurality of] conductive films and said first surface of said semiconductor chip is smaller than the thickness of said passivation film." This recited relationship of device measurements is not taught by the disclosure.

Claim 20, lines 19-23 recite "wherein a distance between said insulating layer and said first surface of said semiconductor chip at the inside of said semiconductor chip is smaller than a distance between said insulating layer and an upper surface of said passivation film at the outside of said semiconductor chip." This recited relationship of device measurements is not taught by the disclosure.

Claims 15-19 and 21-25 depend from rejected Claims 14 and 20, respectively, and therefore inherit the defects of those claims.

***Allowable Subject Matter***

7. Claim 26-31 have been allowed.
8. The following is a statement of reasons for the indication of allowable subject matter:

As to Claims 14-25, patentability is indeterminate until the issues set forth in the 35 USC § 112, 1<sup>st</sup> paragraph rejections, above, are resolved.

As to Claims 26-31, patentability resides in the combination: *an insulating layer formed over the main surface of the wiring board, a plurality of conductive films formed on the insulating layer, a passivation film that covers first portions of the plurality of conductive films at the outside of the semiconductor chip, and the adhesive directly adheres between the insulating layer and the first surface of the semiconductor chip at the inside of the semiconductor chip*, in combination with the other limitations of base Claim 26.

9. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Beddingfield et al. (US 5,710,071) discloses a passivating layer 31 on a metallized main surface of substrate 30 but not between chip 20 and the main surface,

although, in an alternate embodiment, the passivating layer (solder mask 31) can extend to the chip mounting region of the substrate (Fig. 8; col.5: 42-58). Beddingfield et al. does not teach a substrate main surface with a metallized insulating layer formed thereover, said insulating layer having a passivation layer thereon.

b) Dalal et al. (US 5,729,896) discloses a main substrate 10 with adhesive layer 12 thereon for laminating circuit layer 14; a passivating layer 20 on the circuit layer 14. Dalal et al. does not teach omitting the passivating layer 20 between any of chips 42, 44, 46, 48 and the mounting area on substrate 10 (Figs. 7, 8 and 9; col.7: 66-col.8: 29; col.9: 16-50).

c) Scholz (US 5,329,423) discloses a substrate 12 with compliant metallized coating layer 36 for receiving the bumps 24 and 26 of chip 10 (Figs. 1 and 2; col.4: 13-24).

d) The following references disclose a passivating layer on a metallized main surface of a substrate, including between the mounted chip and the main surface. The references do not teach a substrate main surface with a metallized insulating layer formed thereover, said insulating layer having a passivation layer thereon:

Takano et al. (US 5,952,727): Fig. 5B; col.3: 31-35.

Suzuki (US 5,925,445): Figs. 3 and 4A; col.6: 7-20 and 38-46.

Marrs (US 5,795,818): Figs. 6 and 8; col.8: 41-60.

Sweitzer (US 5,615,477): Figs. 3A,B; col.10: 25-49).

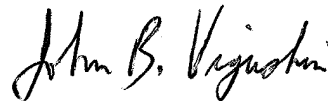
Shirasaki et al. (US 5,378,859): Figs. 3C and 4B; col.4: 13-22; col.5: 44-54.

Art Unit: 2827

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 703-308-1205. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



John B. Vigushin  
Examiner  
Art Unit 2827

jbv  
September 29, 2002